1. In a computing system capable of accessing an instruction tree that represents execution paths for a plurality of XPATH queries, in which each node of the instruction tree represents an instruction, and in which each branch in the instruction tree when executed from the root node to terminating branch node represents an XPATH query, a method for the computing system to evaluate the plurality of XPATH queries using the instruction tree rather than separately evaluating each of the plurality of XPATH queries thereby conserving processing resources, the method comprising the following:

an act of sequentially executing instructions in the instruction tree leading from the root node to a main branching node in the instruction tree;

upon encountering the main branching node in the instruction tree, an act of preserving processing context for the sequential execution up to the main branching node;

an act of executing instructions in the instruction tree in a first main branch of the instruction tree leading from the branching node; and

upon completing the execution of the first main branch of the instruction tree; an act of using the preserved processing context to execute instructions in the instruction tree in a second main branch of the instruction tree leading from the main branching node.

2. A method in accordance with Claim 1, the method further comprising the following:

an act of receiving an electronic message, wherein the act of sequentially executing instruction in the instruction tree is performed in response to the act of receiving the electronic message, and the electronic message is the subject of the XPATH queries.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

3. A method in accordance with Claim 2, wherein the electronic message is an XML document.

4. A method in accordance with Claim 3, wherein the XML document is a SOAP envelope.

5. A method in accordance with Claim 1, further comprising the following:

upon completing the execution of the first main branch of the instruction tree; an act of using the preserved processing context to execute instructions in the instruction tree in a third main branch of the instruction tree leading from the branching node.

6. A method in accordance with Claim 1, wherein the act of executing instructions in the instruction tree in a first main branch of the instruction tree leading from the main branching node comprises the following:

an act of sequentially executing instructions in the instruction tree leading from the main branching node to a first second-order branching node in the instruction tree;

upon encountering the first second-order branching node in the instruction tree, an act of preserving a first second-order processing context that represents the processing context for the sequential execution up to the first second-order branching node;

an act of executing instructions in the instruction tree in a first second-order branch of the instruction tree leading from the first second-order branching node; and

upon completing the execution of the first second-order branch of the instruction tree; an act of using the preserved first second-order processing context to execute

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

instructions in the instruction tree in a second second-order branch of the instruction tree leading from the first second-order branching node.

7. A method in accordance with Claim 6, wherein the act of sequentially executing instructions in the instruction tree leading from the main branching node to a first second-order branching node in the instruction tree comprises the following:

an act of sequentially executing all instructions in the instruction tree leading from the main branching node in the instruction tree to the first second-order branching node.

8. A method in accordance with Claim 6, wherein the act of sequentially executing instructions in the instruction tree leading from the main branching node to a first second-order branching node in the instruction tree comprises the following:

an act of sequentially executing some instructions in the instruction tree leading from the main branching node in the instruction tree to the first second-order branching node.

9. A method in accordance with Claim 6, wherein the act of executing instructions in the instruction tree in a second main branch of the instruction tree leading from the main branching node comprises the following:

an act of sequentially executing instructions in the instruction tree leading from the main branching node to a second second-order branching node in the instruction tree;

upon encountering the second second-order branching node in the instruction tree, an act of preserving a second second-order processing context that represents the processing context for the sequential execution up to the second second-order branching node;

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

an act of executing instructions in the instruction tree in a second second-order branch of the instruction tree leading from the second second-order branching node; and

upon completing the execution of the second second-order branch of the instruction tree; an act of using the preserved second second-order processing context to execute instructions in the instruction tree in a second second-order branch of the instruction tree leading from the second second-order branching node.

10. A method in accordance with Claim 9, wherein the act of sequentially executing instructions in the instruction tree leading from the main branching node to a second second-order branching node in the instruction tree comprises the following:

an act of sequentially executing all instructions in the instruction tree leading from the main branching node in the instruction tree to the second second-order branching node.

11. A method in accordance with Claim 9, wherein the act of sequentially executing instructions in the instruction tree leading from the main branching node to a second second-order branching node in the instruction tree comprises the following:

an act of sequentially executing some instructions in the instruction tree leading from the main branching node to the second second-order branching node in the instruction tree.

12. A method in accordance with Claim 1, wherein each instruction in the instruction tree may comprise one or more processor instructions.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

13. A method in accordance with Claim 1, wherein the act of sequentially executing instructions in the instruction tree leading from the root node to a main branching node in the instruction tree comprises the following:

an act of sequentially executing all instructions in the instruction tree leading from the root node to a main branching node in the instruction tree.

14. A method in accordance with Claim 1, wherein the act of sequentially executing instructions in the instruction tree leading from the root node to a main branching node in the instruction tree comprises the following:

an act of sequentially executing some instructions in the instruction tree leading from the root node to a main branching node in the instruction tree.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

15. A computer program product for use in a computing system capable of accessing an instruction tree that represents execution paths for a plurality of XPATH queries, in which each node of the instruction tree represents an instruction, and in which each branch in the instruction tree when executed from the root node to terminating branch node represents an XPATH query, the computer program product comprising one or more computer-readable media having thereon computer-executable instructions for executing a method for the computing system to evaluate the plurality of XPATH queries using the instruction tree rather than separately evaluating each of the plurality of XPATH queries thereby conserving processing resources, the method comprising the following:

an act of sequentially executing instructions in the instruction tree leading from the root node to a main branching node in the instruction tree;

upon encountering the main branching node in the instruction tree, an act of preserving processing context for the sequential execution up to the main branching node;

an act of executing instructions in the instruction tree in a first main branch of the instruction tree leading from the branching node; and

upon completing the execution of the first main branch of the instruction tree; an act of using the preserved processing context to execute instructions in the instruction tree in a second main branch of the instruction tree leading from the main branching node.

16. A computer program product in accordance with Claim 15, the method further comprising the following:

an act of receiving an electronic message, wherein the act of sequentially executing instruction in the instruction tree is performed in response to the act of receiving the electronic message, and the electronic message is the subject of the XPATH queries.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

17. A computer program product in accordance with Claim 15, wherein the method further comprises the following:

upon completing the execution of the first main branch of the instruction tree; an act of using the preserved processing context to execute instructions in the instruction tree in a third main branch of the instruction tree leading from the branching node.

18. A computer program product in accordance with Claim 15, wherein the act of executing instructions in the instruction tree in a first main branch of the instruction tree leading from the main branching node comprises the following:

an act of sequentially executing instructions in the instruction tree leading from the main branching node to a first second-order branching node in the instruction tree;

upon encountering the first second-order branching node in the instruction tree, an act of preserving a first second-order processing context that represents the processing context for the sequential execution up to the first second-order branching node;

an act of executing instructions in the instruction tree in a first second-order branch of the instruction tree leading from the first second-order branching node; and

upon completing the execution of the first second-order branch of the instruction tree; an act of using the preserved first second-order processing context to execute instructions in the instruction tree in a second second-order branch of the instruction tree leading from the first second-order branching node.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

19. A computer program product in accordance with Claim 18, wherein the act of executing instructions in the instruction tree in a second main branch of the instruction tree leading from the main branching node comprises the following:

an act of sequentially executing instructions in the instruction tree leading from the main branching node to a second second-order branching node in the instruction tree;

upon encountering the second second-order branching node in the instruction tree, an act of preserving a second second-order processing context that represents the processing context for the sequential execution up to the second second-order branching node;

an act of executing instructions in the instruction tree in a second second-order branch of the instruction tree leading from the second second-order branching node; and

upon completing the execution of the second second-order branch of the instruction tree; an act of using the preserved second second-order processing context to execute instructions in the instruction tree in a second second-order branch of the instruction tree leading from the second second-order branching node.

20. A computer program product in accordance with Claim 15, wherein the one or more computer-readable media comprise physical media.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

21. In a computing system capable of accessing an instruction tree that represents execution paths for a plurality of XPATH queries, in which each node of the instruction tree represents an instruction, and in which each branch in the instruction tree when executed from the root node to terminating branch node represents an XPATH query, a method for the computing system to evaluate the plurality of XPATH queries using the instruction tree rather than separately evaluating each of the plurality of XPATH queries thereby conserving processing resources, the method comprising the following:

an act of sequentially executing instructions in the instruction tree leading from the root node to a main branching node in the instruction tree; and

a step for executing the remainder of the instruction tree without redundantly executing the instructions in the instruction tree leading from the root node to a main branching node in the instruction tree.

22. A method in accordance with Claim 21, wherein the step for executing the remainder of the instruction tree comprises the following:

upon encountering the main branching node in the instruction tree, an act of preserving processing context for the sequential execution up to the main branching node;

an act of executing instructions in the instruction tree in a first main branch of the instruction tree leading from the branching node; and

upon completing the execution of the first main branch of the instruction tree; an act of using the preserved processing context to execute instructions in the instruction tree in a second main branch of the instruction tree leading from the main branching node.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

23. A method in accordance with Claim 22, the method further comprising the following:

an act of receiving an electronic message, wherein the act of sequentially executing instruction in the instruction tree is performed in response to the act of receiving the electronic message, and the electronic message is the subject of the XPATH queries.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

24. A computing system comprising the following:

system memory;

one or more processors capable of accessing system memory and instantiating the following in system memory when executing computer-executable instructions:

an instruction tree that represents execution paths for a plurality of XPATH queries, in which each node of the instruction tree represents an instruction, and in which each branch in the instruction tree when executed from the root node to terminating branch node represents an XPATH query; and

an inverse query engine configured to receiving an electronic document and evaluate the plurality of XPATH queries against the electronic document using the instruction tree rather than separately evaluating each of the plurality of XPATH queries.

25. A computing system in accordance with Claim 24, wherein the electronic message is an XML document.

26. A computer system in accordance with Claim 24, wherein the XML document is a SOAP envelope.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

27. In a computing system capable of accessing an instruction tree that represents execution paths for a plurality of queries, in which each node of the instruction tree represents an instruction, and in which each branch in the instruction tree when executed from the root node to terminating branch node represents a query, a method for the computing system to evaluate the plurality of queries using the instruction tree rather than separately evaluating each of the plurality of queries thereby conserving processing resources, the method comprising the following:

an act of receiving an electronic message, wherein the act of sequentially executing instruction in the instruction tree is performed in response to the act of receiving the electronic message, and the electronic message is the subject of the plurality of queries;

an act of sequentially executing instructions in the instruction tree leading from the root node to a main branching node in the instruction tree;

upon encountering the main branching node in the instruction tree, an act of preserving processing context for the sequential execution up to the main branching node;

an act of executing instructions in the instruction tree in a first main branch of the instruction tree leading from the branching node; and

upon completing the execution of the first main branch of the instruction tree; an act of using the preserved processing context to execute instructions in the instruction tree in a second main branch of the instruction tree leading from the main branching node.

28. A method in accordance with Claim 27, wherein the electronic message is an XML document.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

29. A method in accordance with Claim 28, wherein the XML document is a SOAP envelope.

30. A method in accordance with Claim 27, further comprising the following:

upon completing the execution of the first main branch of the instruction tree; an act of using the preserved processing context to execute instructions in the instruction tree in a third main branch of the instruction tree leading from the branching node.

31. A method in accordance with Claim 27, wherein the act of executing instructions in the instruction tree in a first main branch of the instruction tree leading from the main branching node comprises the following:

an act of sequentially executing instructions in the instruction tree leading from the main branching node to a first second-order branching node in the instruction tree;

upon encountering the first second-order branching node in the instruction tree, an act of preserving a first second-order processing context that represents the processing context for the sequential execution up to the first second-order branching node;

an act of executing instructions in the instruction tree in a first second-order branch of the instruction tree leading from the first second-order branching node; and

upon completing the execution of the first second-order branch of the instruction tree; an act of using the preserved first second-order processing context to execute instructions in the instruction tree in a second second-order branch of the instruction tree leading from the first second-order branching node.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

32. A method in accordance with Claim 31, wherein the act of executing instructions in the instruction tree in a second main branch of the instruction tree leading from the main branching node comprises the following:

an act of sequentially executing instructions in the instruction tree leading from the main branching node to a second second-order branching node in the instruction tree;

upon encountering the second second-order branching node in the instruction tree, an act of preserving a second second-order processing context that represents the processing context for the sequential execution up to the second second-order branching node;

an act of executing instructions in the instruction tree in a second second-order branch of the instruction tree leading from the second second-order branching node; and

upon completing the execution of the second second-order branch of the instruction tree; an act of using the preserved second second-order processing context to execute instructions in the instruction tree in a second second-order branch of the instruction tree leading from the second second-order branching node.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

33. A computer-assisted method for generating a flattened code sequence, the method comprising the following:

an act of accessing a loop code sequence that has a plurality of loops each involving a different value for an input parameter, the execution of each loop involving the execution of at least a first expression and a second expression for a given input parameter;

an act of generating a flattened code sequence based on the loop code sequence, the flattened code sequence including the following:

a first expression that performs the first operation for all of the different values of the input parameter; and

a second expression that performs the second operation for all of the different values of the input parameter, wherein the second expression is executed after the first expression is executed.

34. A method in accordance with Claim 33, wherein the act of accessing a loop code sequence comprises the following:

an act of compiling an XPATH expression.

WORKMAN, NYDEGGER & SEELEY
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111